(b) providing said cells *ex-vivo* with conditions for cell proliferation and, at the same time, for reducing a capacity of said cells in utilizing cooper, thereby expanding a population of said cells, while at the same time, inhibiting differentiation of said cells; and

(c) transplanting said cells to the patient.

38. (New) The method of claim 37, wherein reducing said capacity of the cells in utilizing copper is effected by a transition metal chelator having an affinity to copper.

39. (New) The method of claim 38, wherein said transition metal chelator is selected from the group consisting of polyamine chelating agents, ethylendiamine, diethylenetriamine, triethylenetetramine, triethylenediamine, tetraethylenepentamine, aminoethylethanolamine, aminoethylpiperazine, pentaethylenehexamine, triethylenetetramine-hydrochloride, tetraethylenepentamine-hydrochloride, pentaethylenehexamine-hydrochloride, tetraethylpentamine, captopril, penicilamine, N,N'-bis(3-aminopropyl)-1,3-propanediamine, N,N,Bis (2 animoethyl) 1,3 propane diamine, 1,7-dioxa-4,10-diazacyclododecane, 1,4,8,11-tetraaza cyclotetradecane-5,7-dione, 1,4,7-triazacyclononane trihydrochloride, 1-oxa-4,7,10-triazacyclododecane, 1,4,8,12-tetraaza cyclopentadecane, 1,4,7,10-tetraaza cyclododecane.

40. (New) The method of claim 37, wherein providing the cells with said conditions for cell proliferation include providing the cells with nutrients and with cytokines.

41. (New) The method of claim 40, wherein said cytokines are early acting cytokines.

42. (New) The method of claim 41, wherein said early acting cytokines are selected from the group consisting of stem cell factor, FLT3 ligand, interleukin-6, thrombopoietin and interleukin-3.

43. (New) The method of claim 40, wherein said cytokines are late acting cytokines.